Market Segmentation

The market for wireline local directory assistance is controlled by incumbent local exchange carriers (ILECs). Within this group are the regional bell operating companies (RBOCs). RBOCs account for over 80 percent of local directory assistance revenues. The remaining market share belongs to smaller ILECs and competitive local exchange carriers (CLECs) that purchase the database information from an ILEC or another source.

AT&T and WorldCom are attempting to gain some local directory assistance revenue by providing non subscribers with a way to search national listings. Obviously, this product can also be used for local searches. Frost & Sullivan does not believe that the RBOCs are in danger of losing revenues to competitors within their territories. The biggest threat to RBOCs and ILECs comes from wireless communication.

Key Market Segment Trends

Figure 14 displays the key market trends identified by Frost & Sullivan during its gathering of primary and secondary research on the directory assistance market. They are listed in order of importance on the market.

Figure 14

Local Directory Assistance Market: Key Market Trends (U.S.), 2001-2007

Rank	Trends	1-2 Years	3-4 Years	5-7 Years
1	Wireless Directory Assistance is Beginning to Supplant Wireline Use	High	High	High
2	Carriers are Attempting to Reduce the Number of Call Allowances Offered in Each State	High	Medium	Low
3	Call Completion Service is Becoming a Growing Part of Overall Local Directory Assistance Revenues	Medium	High	High
4	Voice Portals will Continue to Become Very Popular with Carriers and End-Users	Medium	High	High
5	Prices for Initial Searches are Rising to Include the Cost of "Free" Call Completion	Medium	Medium	High
6	Carriers are Offering Additional Enhanced Services Features to their Directory Assistance Product	Low	Medium	Low
7	Migration of Users to Internet Directory Assistance Service is Affecting Local Volume	Low	Low	Medium

Source: Frost & Sullivan

Wireless Directory Assistance is Beginning to Supplant Wireline Use

Local directory assistance is impacted much more severely than national directory assistance by wireless communication. Wireless is mobile, and as such, lends itself to impromptu directory assistance searches. Rather than wait until they get home, end users can simply use their wireless directory assistance services whenever necessary. It affects local more than national searches because end users may use the service to contact businesses or individuals that they are on their way to visit. This is not the case with national searches. End users can wait until they get home to contact national listings, as those conversations will probably be more time consuming or content intensive.

Wireless directory assistance is often free of charge to its subscribers. If there is a charge, it is typically much lower than the fees charged by its wireline counterpart. This is true for both the search and call completion services.

Carriers are Attempting to Reduce the Number of Call Allowances Offered in Each State

In an attempt to increase revenues, carriers like Qwest are attempting to reduce the number of call allowances offered in each state. Some states mandate the number of call allowances residents are entitled to receive. Qwest only provides call allowances to five of the fourteen states in its region. In three of those states, subscribers are limited to one call allowance. SBC also provides call allowances to only five states in its calling regions.

By reducing the number of call allowances in each state, carriers are hoping to receive more revenues from paid-for-searches. End users that do not have wireless phones or that are not aware of the reduction in call allowances will make more premium directory assistance searches.

Call Completion Service is Becoming a Growing Part of Overall Local Directory Assistance Revenues

Whether the service is included in the price of a directory search, or treated as a separate service, call completion is adding revenues to carriers' bottom lines. Call completion can be marketed and offered as a service already included in the cost of a directory assistance search. For instance, Qwest prices their searches, which include call completion service, at an average of $0.52 more than searches that do not include call completion services. In those states, the average price for directory assistance is $0.54 and call completion is priced at $0.35 cents.

Another pricing method is to include most of the call completion cost in the fee for a listing search. SBC, in its Southwestern Bell region, charges $0.05 per call for call completion in two states. The search fee for those two states is $0.75. In another state, it charges $0.51 for a listings search, but charges $0.30 for the call completion service. The two states that charge $0.05 per call completion are recouping most of the cost in their listings search fee. Whether end users agree to the call completion service or not, they are paying for it. If they do not agree to the call completion service, their money will go to subsidize the cost of call completion for other end users.

The third manner in which call completion is being marketed is as a less expensive complementary service. The first pricing schedule treated call completion as an included feature. The second schedule viewed call completion as a "throw-in" service. By acknowledging call completion as a separate service, carriers may also have success in generating revenues if they can keep prices below the fee for a listings search. Sprint charges and average $0.46 cents for each directory listing search. In the states where call completion service is offered, it is priced at an average rate of $0.34 per completed call. Together the services cost only $0.80 per use. By keeping the services separate, the cost of directory assistance searches will be lower, which can increase volume. Increased volume for directory assistance will increase the likelihood of callers using call completion.

Voice Portals will Continue to Become Very Popular with Carriers and End Users

Voice portal services are relatively straightforward to deploy and offer many opportunities to carve out a singular niche market. Voice portals offer service providers an incredible opportunity to expand their user base and differentiate themselves from their competition. Existing portal and web site operators have huge databases and can support telephone applications with minimal investment.

Technology has evolved, further increasing the attractiveness of voice portals. Text-to-speech technology has also improved. The adoption of a standard voice-scripting language, such as voice extensible markup language (VXML), can be expected to fuel voice portal services, just as hypertext markup language (HTML) fueled development of the Internet. Additionally, the cost of creating a speech-based portal platform continues to decline. Increasing densities and decreasing costs on the voice processing and network interface hardware that form a central part of a voice portal system allow service providers to serve more users at less cost. Finally, the Internet has raised public expectations, with people growing used to having information at their fingertips when they want it. Once people get accustomed to immediate news, weather reports, movie listings, or stock quotes over the Internet, the transition to the phone makes perfect sense.

Prices for Initial Searches are Rising to Include the Cost of "Free" Call Completion

As stated in earlier, call completion is being marketed to be included with directory assistance service. If it is included, carriers cannot justify two charges for one call. The result is a rising directory assistance fee. In 1998, the average directory assistance call was $0.41 cents per call. Today, the average price is above $0.70 cents per call. This rise cannot be attributed to just a rising cost of living. Many carriers are including the cost of call completion in their initial fee for directory assistance. The rising costs can be recognized in some of today's pricing schedules. As an example, Qwest charges an average of $1.07 per call in their states that offer call completion as an included feature of directory assistance. In the states where the service is not offered or is billed as a separate charge, the average directory assistance fee is $0.70. If Qwest does eventually provide call completion service in the excluded states, it will have to decide whether to include it as part of the directory assistance service or as a separate product.

Carriers are Offering Additional Enhanced Services Features to their Directory Assistance Product

Call completion is the most popular enhanced service offered within directory assistance service. It is not, however, the only enhanced service available. Not all carriers offer enhanced services or even a complete list of services. Their own capabilities or government regulations may disallow them from doing so. Some of the more popular enhanced services include:

- Reverse searches
- Yellow page searches
- Weather updates
- Restaurant and entertainment searches

These services are not of the complementary stature that call completion maintains. As such, they will never generate revenues comparable to call completion. Instead, these ancillary services may help to "fill out" revenue needs or expectations.

Migration of Users to Internet Directory Assistance Service is Affecting Local Volume

The Internet offers wireline directory assistance. For the majority of users, it is a free service. On some sites, business users can purchase service contracts that allow them a certain number of searches and other web services for a monthly fee. The availability of "always on" DSL and cable Internet access is allowing end users to access the Internet faster than ever before. Internet directories can now be accessed as fast as wireline directories. In addition to the improved speed and convenience of Internet directories, they provide information on business listings that end users would have normally called the business to discover. This reduces the need to call a business to find the closest location, the hours of operation, or to determine what types of payment are accepted.

The ease of use and mostly free searches appeals to many end users, particularly to business enterprises. The lower accuracy rates, however, act as a barrier to the widespread use of Internet directories. Until this problem is successfully addressed, wireline will not experience a significant drain on volume attributable to the Internet.

Revenue Forecasts

The wireline local directory services market is experiencing a steadily decreasing revenue growth rate. In 2000, market revenues totalled $2.12 billion, and are expected to grow through 2003. After that period, revenues are expected to have a negative growth rate for the remainder of the forecast period. At the end of 2007, revenues should be approximately $1.99 billion. From 2000, this is a negative Compound Annual Growth Rate (CAGR) of 0.91 percent.

For the purposes of this study, wireline local directory assistance is defined as a listings search of local telephone numbers by ILECs, CLECs, or IXC's for their customers. Wireline refers to the copper wires used to connect subscribers to the person or enterprise that they are calling. IXCs' entrance into this market is limited to their true single number directory assistance products. Revenues from wireless, Internet, and print directories are not included in this deliverable.

Revenues in the wireline directory assistance market include all monies received by the service providers from the provision and usage of local directory assistance services by commercial and consumer customers. Additionally, revenues from call completion services are also included in the market forecasts.

Figure 15 shows the total market revenues for the U.S. wireline directory assistance market.

FIGURE 15

Local Directory Assistance Services Market: Revenue Forecasts (U.S.), 1997-2007

Year	Revenues ($ Billion)	Revenue Growth Rate (%)
1997	1.91	---
1998	1.98	3.8
1999	2.06	3.9
2000	2.12	2.7
2001	2.16	2.3
2002	2.21	2.0
2003	2.25	1.8
2004	2.22	(1.4)
2005	2.14	(3.3)
2006	2.07	(3.2)
2007	1.99	(4.3)
Compound Annual Growth Rate (2000-2007): (0.91)%		

Note: All figures are rounded; the base year is 2000. Source: Frost & Sullivan

For the ten year period, the CAGR for local directory assistance is only 0.41 percent. In ten years, local directory assistance is only expected to increase $80 million. For the time between 2000 and 2007, the industry is forecasted to have negative revenue growth, decreasing $130 million from $2.12 billion to $1.99 billion. After 2003, revenues are expected to decrease by over a quarter of a billion dollars. The decreasing revenue growth rates and eventual negative results can be attributed to:

- The popularity of wireless directory assistance
- Call allowances
- The revitalization of the "Yellow Pages"
- Increasing acceptance of Internet directories among businesses

Wireless directory assistance prices are most often less expensive per search than wireline searches. In fact, a large number of wireless directory searches are free of charge. Call completion service executed by wireless carriers is also lower than its wireline counterpart. Wireless directory assistance is also a very attractive alternative because it is mobile. Users do not need to be at home or use an public pay phone. Most importantly, the wireless databases are as accurate as wireline databases.

The number of call allowances greatly influence revenues for carriers. Those carriers who offer service in states with high call allowances may have a more difficult time generating revenues than their counterparts in states with fewer call allowances. They must provide service free of charge for as many as six monthly calls to any end user before they can charge that subscriber for service. After that many listing searches in 1 month, the demand for another listing may be nonexistent. Qwest has made a great effort to reduce the number of call allowances they provide their subscribers. They only offer call allowances in 5 of their 14 states. In 3 of the 5 states, their subscribers are only afforded 1 call allowance per month. Qwest is the exception, however. SBC offers call allowances in 8 of its 13 states and averages over 3 call allowances per subscriber in those states. Sprint, in its 20 regions, offers an average of 3 monthly call allowances in 16 of those areas.

The public is getting increasingly smarter concerning directory assistance. It will use as many free call allowances as possible before using wireless, Internet, or print directories. Unless carriers can successfully petition for a decrease in their call allowances, this trend will continue and further hinder revenue generation.

Print directories are free and can provide the business information, requested by an end-user, in a page advertisement. In general, however, they are not a large competitor to wireline directory assistance. They are not as much an alternative as they are a substitution product. Print directories are, however, improving their image as a true source in the search for business listings. Distributors of print directories have increased the advertisement space for businesses and lowered their prices. They are providing coupons for businesses and increased their presence in the community through media promotions. The Yellow Pages is a ubiquitous term in every community. This marketing push by print directory providers can continue to drain revenues from wireline directories, especially among business searches.

Internet directories, while not as accurate as other directory products, are free to most users, offer unlimited searches to most users, and often provide information that the end user was requesting. Internet directories generate most of their revenue from advertisers and listed participants. Improvements must and will be made to Internet directories in order to increase their accuracy. If they remain as unreliable as they are today, they will receive fewer visitors and will not have any significant influence on wireline directory assistance. Frost & Sullivan believes that Internet directories will improve upon their accuracy because they must keep their number of visitors above a certain level to justify their advertisement fees. This factor, plus the increasing use of "always on" broadband Internet access, will contribute to the declining revenue growth in the wireline directory assistance industry over the latter part of the forecast period.

Demand Analysis

The market demand for local directory assistance equated to approximately 4.50 billion requests. These requests are the number of calls made by end users to wireline providers solely for local directory listings. The total includes both paid for searches and those made as part of a consumer's monthly call allotment. The volume of calls does not include searches conducted over wireless directories, Internet directories, or payphones.

Figure 16 illustrates the anticipated volume levels through 2007. According to the forecast, demand for wireline directory assistance has been declining since 1997. The volume in 2000 is a reduction of over 4 percent from the previous year, and nearly 500,000 less than the total volume in 1997. By 2007, volume for the local directory assistance market is expected to decline to 3.23 billion search requests. This is a negative Compound Annual Growth Rate (CAGR) of 4.63 percent.

FIGURE 16

Local Directory Assistance Services Market: Demand Forecasts (U.S.), 1997-2007

Year	Call Volume (Billion)	Growth Rate (%)
1997	4.98	---
1998	4.88	(2.0)
1999	4.70	(3.8)
2000	4.50	(4.2)
2001	4.29	(4.6)
2002	4.10	(4.6)
2003	3.90	(4.7)
2004	3.71	(4.9)
2005	3.54	(4.7)
2006	3.37	(4.6)
2007	3.23	(4.3)

Compound Annual Growth Rate (2000-2007): (4.63)%

Note: All figures are rounded; the base year is 2000. Source: Frost & Sullivan

Volume is decreasing for several reasons, the most pervasive being:

- Impact of wireless directory assistance on wireline market
- Emergence and acceptance of Internet directories, especially among commercial users

- Rise of inaccurate listings and non-listings among all types of directory assistance providers
- Strong marketing efforts of carriers to revitalize print directory market

Listings from wireless directory assistance providers are as accurate as wireline listings. This is a result of shared databases, especially among ILECs that offer both wireless and wireline service. Wireless communication is also beginning to be used more frequently as consumers' primary form of communication. It is mobile and more convenient than wireline service. As more individuals purchase wireless service, wireline directory assistance will continue to experience reductions in its volume.

Internet directories are becoming more attractive to end users because they are free. Also, they have the excitement and intrigue about them because the Internet is still cutting edge to most people. Additionally, it is getting easier to access the Internet. The boom in DSL and cable modems means that more businesses and consumers have an "always on" Internet connection. Now the time to access a directory site and retrieve the information is relatively the same as using wireline service, especially for listings with common names. Web directories also generally include information about commercial listings that end-users were going to inquire about. Internet directory assistance providers must and will improve upon their product's accuracy so that they may continue to attract advertising customers. If Internet directories do not improve upon their accuracy rate, then volume for wireline directory assistance will not decrease as forecasted.

Inaccuracy is an increasing trend for all types of directory assistance providers. Private citizens are requesting to have their names omitted from the database of listings. They cite privacy and security as the main reasons for their decision. The result is either an incorrect listing or a "no listing found" result. This affects wireline providers in addition to wireless and Internet, but since wireline is typically their first source after the phone book, end users become upset faster with wireline directory assistance. This leads to apathy for the service and frustration when they must call the carrier back to get a credit for an incorrect listing. The free searches offered by Internet directories become more attractive when end users become overly frustrated with wireline and wireless directories.

Finally, print directories are on the rise again. Every major ILEC provides print directories to their subscribers. Unless the listing has changed within a year, the print listing should match whatever is disclosed on the wireline directory. Carriers have made a big push recently to increase print directory usage. Carriers are increasing the amount of coupons for business services, free promotions, and larger commercial advertisements for listed participants within their print directories. Private and public organizations are also producing specialty, or niche, print directories. Chambers of Commerce representing racial minorities, religious organizations, and women's groups are producing print directories that include member participants and that also offer incentives to end users.

Price Trends

Local directory assistance prices have slightly increased over recent years. This is because many local directory assistance providers are including the cost of call completion service within their initial price offering. Call completion is treated as an included feature by many in their directory assistance product. However, in regions where carriers are not including the cost of call completion in their initial offering, prices have decreased.

Excluding the spikes in prices due to the inclusion of call completion, prices for directory assistance service should decrease throughout the forecast period. Even the prices that were raised to wholly or partially include the cost of call completion are beginning to decrease. The main reasons for the declining prices are:

- Intense competition from wireless directory assistance providers
- Growing acceptance of, and easier access to Internet directories, particularly among commercial enterprises
- Providers need to increase usage of directory and call completion services

The declining wireless prices and their increasing subscriber base is suppressing the growth of wireline voice services, including directory assistance. The rise in consumer mobility coupled with the need for constant communications is leading to a greater demand for wireless service. Add to this the coming improvements and enhancements promised by Third Generation technology, wireline communication is in serious trouble of losing some of its subscriber base. Wireless growth rate is constantly in double digits year after year. Wireline growth, while still positive, is decreasing. This is the best and most concrete proof that the trend towards less wireline service is growing. Wireless directory assistance is viewed as superior to wireline service for several reasons. The most pertinent are:

- Wireless databases are as accurate as wireline directory assistance databases
- End users may use the service when they are in transit, which makes it more spontaneous and convenient

Internet directories, while not as accurate as other directory products, can be a significant influence on wireline pricing; especially among business subscribers. Commercial enterprises receive few, if any, call allowances from their directory assistance provider. The emergence of Internet directories means that businesses no longer have to submit to this unequal treatment. Internet directories are generally free of charge and provide nearly all of the information that end users would normally request from directory assistance. Their only drawback is their higher than normal inaccuracy. Internet directories generate most of their revenue from advertisers and listed participants. Improvements must and will be made to Internet directories in order to increase their accuracy. If they remain as unreliable as they are today, they will receive fewer visitors and will not have any significant influence on wireline directory assistance. Frost & Sullivan believes that Internet directories will improve upon their accuracy because they must keep their number of visitors above a certain level to justify their advertisement fees. This factor, plus the increasing use of "always on" broadband Internet access, will contribute to the declining revenue growth in the wireline directory assistance industry over the latter part of the forecast period.

Even where the cost of call completion service is becoming the larger portion of directory assistance fees, carriers are hesitant to increase prices too severely. Local directory providers are using very successful pricing schedules in an attempt to increase their revenues. Many are raising their fee for conducting a listings search and lowering their call completion charge. Others offer call completion service for free and increase the fee for conducting the search even more. The least successful method of pricing is for providers to offer the two services as separate functions. Following are a few selected examples of pricing schedules:

- Qwest in Arizona: 85 cent charge for search and no charge for call completion
- Qwest in Oregon: 50 cent charge for search and 35 cent charge for call completion
- SBC in Texas: 75 cent charge for search and 5 cent charge for call completion
- SBC in Arkansas: 50 cent charge for search and 30 cent charge for call completion
- SBC in Nevada: 50 cent charge for search and 45 cent charge for call completion

An important factor to note is that states can sometimes influence how much carriers can charge for service. Carriers then have to create pricing schemes that will allow them to generate the most potential revenue while adhering to the laws.

Competitive Structure

Figure 17 illustrates the current competitive structure in the U.S. wireline local directory assistance market. The market consists of local directory assistance searches and call completion service. The number of market participants has decreased from previous years due to the number of competitive local exchange carriers (CLECs) that have dropped out of the market. Subscribers of the failed CLECs were absorbed by their regional ILECs.

Frost & Sullivan has identified three levels of market participants in the local directory assistance industry. The first tier consists of regional bell operating carriers (RBOCs). The RBOCs control the local directory assistance market, and as of 2000, accounted for over 60 percent of market revenues and nearly 80 percent of the call volume. Despite the presence of CLECs, each RBOC has substantial control of directory assistance revenues in each of their territories. Frost & Sullivan does not foresee any significant wireline threats to the RBOCs that may undermine their dominance. Wireless directory assistance is a threat that is universal to all ILECs and CLECs offering directory assistance.

FIGURE 17

Wireline Local Directory Assistance Market: Competitive Structure (U.S.), 2000

Types of Competitors	RETAIL ONLY: Incumbent local exchange carriers, dominated by regional bell operating companies (RBOCs). Competitive local exchange carriers that purchase service for their subscribers. AT&T & WorldCom that offer true single number directory assistance products.
Tiers of Competition	Four tiers of competition: Tier 1: RBOCs. SBC, Verizon, BellSouth, and Qwest own the overwhelming majority of the market. Tier 2: (a) CLECs that purchase access to directory assistance databases for their subscribers from ILECs or independent wholesale directory providers. (b) Smaller ILECs operating independently from the RBOCs. Tier 3: (a) AT&T and WorldCom using their one source single number NDA products to enter local directory assistance markets. (b) Call center agencies and bureaus, and other providers of national directory assistance.
Key End-User Groups	Subscribers in the consumer market. Commercial enterprises.
Competitive Factors	Accuracy and reliability of listings and service. Pricing schedules. Ability to offer call completion at attractive enough prices to subscribers. Customer awareness of product availability and features. Customer service: automated assistance, voice recognition, call allowances.

Source: Frost & Sullivan

The second tier of competitors is comprised of the smaller ILECs and CLECs that are in existence. ILECs, such as Alltel in the Midwest, offer directory assistance to their subscribers in the same fashion that Sprint and the RBOCs provide service to their customers. The tier one competitors simply have larger networks and more listings. CLECs can either create their own listings database or purchase service from an ILEC for their subscribers.

The third tier of competition encompasses all other market participants:

- IXCs using single number NDA to enter local markets
- Independent call centers and all other providers of wireline directory assistance

Directory assistance is used on a daily basis for a multitude of reasons. Commercial enterprises use the service to contact potential clients or business partners (suppliers, distributors, vendors). Consumers use it to find the numbers for acquaintances and businesses such as restaurants, movie theaters, and retail outlets. Presently, consumers account for nearly 70 percent of all local directory assistance searches. Over the forecast period the breakout between consumer and commercial end users is expected to remain fairly consistent.

The driving forces behind directory assistance service acceptance and usage are:

- High ratio of accurate listings
- Attractive pricing of services and features
- Ability to provide call completion service on all calls
- Customer education about the services and features available to them

Wireline, along with wireless directory assistance service, has the highest ratio of accurate listings. Their databases are updated on a daily basis, and as the service providers typically own their own databases, they can guarantee high levels of accuracy. The factor that wireline directories have over wireless directories is that there are more potential wireline end users than wireless subscribers. Even those with wireless telephones continue to use wireline service as their primary residential form of communication.

Call completion is not the only enhanced service available to end users, but it is the most popular. It is so popular that many carriers are marketing the service as an included feature to their directory assistance search service. This allows them to raise their price for searches, slightly above what regular searches cost only a few years ago. Other enhanced services include weather information, traffic updates, and restaurant and entertainment information. They are priced separately from directory searches, but priced low enough so that end users will be willing to try them.

National Directory Assistance Services Market

Introduction

Introduction to the Wireline National Directory Assistance Service Market

The U.S. retail wireline national directory assistance (NDA) services market generated $1.26 billion in revenues in 2000. This is an increase of over $800,000 from the previous year, but is realizing a peaking growth rate. Over the next few years, the growth rate is expected to remain positive, but decrease by nearly 5.5 percent by 2007. The probable reasons for its declining growth rate are:

- Continued invasion of ILECs into the national directory assistance market
- Migration of end users from 1+NPA products to single number directory assistance and 1+411 products

- Emergence of wireless and Internet directory assistance services

ILECs are now capable of offering national directory assistance. They can offer the service for less than what IXCs offer, but cannot complete the call or offer a seamless search on every call. IXCs can complete the call by the end user. True single number directory assistance products offered by AT&T and WorldCom include the cost of call completion in their initial price offering. It is unclear whether or not call completion will be a determining factor in the national directory assistance market. If it is not, then ILECs will continue to take market share away from IXCs. Over the years, as more ILECs receive 271 Relief, they will be able to provide call completion service and make call completion service ubiquitous.

Currently, dialing 1+411 by CLEC and smaller ILEC subscribers generally leads to the end-user redialing the 1+NPA-555-1212 product after he/she has received the correct area code from the 1+411 product. RBOCs and larger ILECs like Sprint, can usually seamlessly complete a search for a national listing. Currently, no RBOC can provide a seamless search on all calls. As the competitive environment improves and carriers gain inter-region access, dialing the 1+NPA product will become less of a necessity. ILECs will be forced to address this situation, as WorldCom and AT&T already offer true single NDA products that connect the end user on the first call, every time.

Wireless communication has not been a serious threat to national directory assistance in the past, and may only have a marginal impact in the near future, but it is very likely that it will begin to lure away more and more wireline directory assistance end-users. It is convenient, relatively priced, and offers quite inexpensive call completion service. Internet directories offer their listings virtually free of charge, and often contain pertinent information on the web site about business listings. They usually provide a link to the company's website if there is an ad on their site. Despite their reputation for inaccuracy, commercial enterprises may begin to use them more often as long as their search results remain free of charge or relatively inexpensive if bought in bulk. Also, there must be some action by the Internet sites to improve upon their accuracy. High speed data access penetration in both the commercial and consumer markets make Internet directories easy to access.

Despite the declining growth rates, there is still positive growth. This can be attributed to the following factors:

- Convenience of wireline service
- The development and marketing of new products by the service providers is helping expand DA usage among commercial and consumer customers (single number NDA products).
- Overwhelming number of households and businesses whose primary telecommunication method is wireline service
- ILECs own their original databases and can assure their accuracy. This will increase the number of requests, particularly among 1+411 end users

Along with revenues received for providing listings, carriers also receive services for connecting the two parties. The historical data and forecasts include these call completion revenues, as carriers do not adhere to a uniform method of reporting these revenues, and often include them in their DA revenues. This is especially true for national/long distance directory assistance services (NDA).

Definitions

National directory assistance consists of searches for national listings utilizing wireline communication. Wireline refers to the copper wires used to connect subscribers to the person or enterprise that they are calling. Revenues from wireless, Internet, and print directories are not included in this deliverable.

The term "one source" single number directory assistance (NDA) product is a description for products that meet the following four characteristics. First, they are available to any potential end user. 10-10-9000 and 10-10-ATT-00 are two examples of products that can be used by subscribers and non subscribers of a carrier. The second characteristic is that single number NDA can be used for national and local listings. Third, the product must include a call completion feature. The fourth characteristic is a seamless listing search. One single point of contact should be able to complete the search for the end user. The end user should not have to dial another number to complete the search. Most CLECs cannot offer seamless searches on every call, and ILECs cannot offer their products to all potential users, even in their calling regions. As such, they are not defined as one source NDA products in this deliverable.

Independent agencies are categorized as companies that provide directory information to directory assistance providers. They do not include wholesale companies that provide directory assistance service for a carrier's subscribers. Independent agencies only provide information for the carrier's directory database.

The volume forecasts for national directory assistance markets are based on the annual number of queries for these services by the commercial and consumer customers. Payphone and international directory assistance volumes are not included in the forecasts.

Market Segmentation

The market for national directory assistance is separated into two segments. Historically the national directory assistance market had been completely separate from the local services directory. Interexchange carriers controlled the national directory assistance market, and ILECs, particularly RBOCs, were solely responsible for providing local directory assistance. Today, ILECs are successfully offering national directory assistance service. They have launched their 1+411 service that allows subscribers to access national listings.

The universal NDA product is 1+NPA+555-1212. Both IXCs and ILECs offer this service. AT&T, WorldCom, Sprint, and most ILECs offer single number directory assistance products that do not force the end user to speak to multiple operators. Additionally, end users do not have to be subscribers to WorldCom or AT&T to use their services. This is not true with 1+411 service. Some carriers, providing 1+411 service, do not force the end user to dial 1+Area Code+555-1212 to access a listing.

In 2007, call volume for national searches will equate to approximately 32.4 percent of overall call volume. This is an increase of nearly 400 million minutes over its initial minutes in 2000. This growth in minutes can be attributed to the popularity of the two single number directory assistance products and ILECs' offerings of 1+411 service. As RBOCs continue to gain interLATA access, Frost & Sullivan believes that they will take more national market share away from IXCs. The reason is that they will be able to carry the long distance call and will probably be able to complete the call for less than an IXC.

Key Market Segment Trends

Frost & Sullivan has identified the following market trends for the national directory assistance market. These are issues that were discussed in detail by market participants during discussions with Frost & Sullivan or were identified during secondary research. Figure 18 lists the trends in order of importance on the market.

FIGURE 18

National Directory Assistance Market: Key Market Trends (U.S.), 2001-2007

Rank	Trends	1-2 Years	3-4 Years	5-7 Years
1	The 1+411 Product is Becoming More Ubiquitous in the Market	High	High	High
2	Wireless Directory Assistance Service is Negatively Impacting Wireline Directory Assistance Usage	High	High	High
3	IXC's are Promoting their Ability to Offer Call Completion Service and Seamless Service	High	Medium	Low
4	Voice Portals will Continue to Become Very Popular with Carriers and End-Users	Medium	High	High
5	The Utilization of the 1+NPA+555-1212 is Being Phased Out	Medium	Medium	High
6	Migration of Users to Internet Directory Assistance Service is Affecting National Volume	Low	Low	Medium

Source: Frost & Sullivan

The 1+411 Product is Becoming More Ubiquitous in the Market

Every RBOC now offers 1+411 as a national directory assistance product. Since every RBOC, and almost every ILEC, provide this service, every consumer and some business enterprises should have access to the service. 1+411 may eventually allow subscribers to search national listings without having to switch operators, or call 1+NPA-555-1212 after receiving the correct area code from the 1+411 operator. Currently, some ILECs and CLECs still cannot complete an interLATA search. In those situations, end users hang up and re-dial 1+NPA-555-1212 after their local operator has given them the correct area code(s).

As the majority of consumers and businesses subscribe to an ILEC, Frost & Sullivan expects 1+411 service to become more common in the marketplace and help increase the volume demand throughout the forecast period.

Wireless Directory Assistance Service is Negatively Impacting Wireline Directory Assistance Usage

Wireless communication is steadily supplanting wireline communication. It is less expensive and more convenient than wireline telephony. As a result, enhanced services such as voice messaging, Caller ID, and directory assistance will experience an increase in their demand from wireless subscribers. After voice messaging, directory assistance is the most popular wireless enhanced service. According to data provided by one of our sources, in a survey of wireless customers, almost 50 percent of all business users have used wireless 411 or voice-mail applications. On the consumer side, roughly one-third of consumers have used wireless directory assistance.

This trend should increase wireless directory usage as more people and businesses use wireless technology for their daily communication.

IXC's are Promoting their Ability to Offer Call Completion Service and Seamless Searches

AT&T and WorldCom are exploiting their ability to offer call completion service on all national searches. The majority of ILECs, particularly RBOCs, cannot complete calls on national searches. Sprint can, but is badly overpriced when compared to the cost of call completion for WorldCom and AT&T. Under their one source single number directory assistance product offerings, the cost of call completion is rolled into the cost of the search; but even then the entire process only amounts to $0.99 for WorldCom and $1.49 for AT&T.

Every ILEC and CLEC cannot offer seamless nationwide searches on every call. In both of AT&T's and WorldCom's promotions they constantly state the ease of their products, their ability to connect the call, and the convenience they offer with only needing one operator to complete the search. These advertisements appeal to end-users' demand for simplicity and desire to have a minimal outlay of expense. Both IXCs state for such a low price, they can provide services that ILECs cannot.

Voice Portals will Continue to Become Very Popular with Carriers and End Users

Voice portal services are relatively straightforward to deploy and offer many opportunities to carve out a singular niche market. Voice portals offer service providers an incredible opportunity to expand their user base and differentiate themselves from their competition. Existing portal and web site operators have huge databases and can support telephone applications with minimal investment.

Technology has evolved, further increasing the attractiveness of voice portals. Text-to-speech technology has also improved. The adoption of a standard voice-scripting language, such as voice extensible markup language (VXML), can be expected to fuel voice portal services, just as hypertext markup language (HTML) fueled development of the Internet. Additionally, the cost of creating a speech-based portal platform continues to decline. Increasing densities and decreasing costs on the voice processing and network interface hardware that form a central part of a voice portal system allow service providers to serve more users at less cost. Finally, the Internet has raised public expectations, with people growing used to having information at their fingertips when they want it. Once people get accustomed to immediate news, weather reports, movie listings, or stock quotes over the Internet, the transition to the phone makes perfect sense.

The Utilization of the 1+NPA+555-1212 is Being Phased Out

One source directory assistance products do not require that the 1+NPA product be used ever again. RBOCs, offering 1+411 service are also contributing to the decline of 1+NPA usage. They can offer a seamless search and do not require that the end user provide anything more than a name and city. 1+NPA numbers are mostly used now when an ILEC or CLEC cannot complete a listings search on the first call. Either the number being searched is outside of the carrier's calling region or the network is not set up to provide assistance in that calling region. 1+NPA service is also being used by subscribers that are not aware of the one source and 1+411 products.

Using a 1+411 number for a out of region listing may still necessitate the end user dialing 1-area code-555-1212 to execute the search. Already, using 1+411 for searches within the region greatly eliminates the need to use the 1+NPA product. If the remaining ILECs and CLECs can provide single NDA products for the search requests, then 1+NPA will become an outdated and irrelevant product.

Migration of Users to Internet Directory Assistance Service is Affecting National Volume

Internet directories are primarily free for all users. Some Internet directories offer service contracts to commercial enterprises that allow that business to access a certain amount of listings and other services on the web site. Businesses typically pay a monthly fee for the service. Not only are the majority of searches free, but the listings often provide an address, hours of operations, driving instructions, and advertisements in the form of a link to the enterprises' web sites.

The proliferation of high-speed Internet access, especially among businesses, makes accessing and retrieving information on Internet directories just as fast as using wireline directory assistance. The only drawback to Internet directories are the high rates of inaccurate or missing information. Internet directories do not own their own listings databases like ILECs do. As such, they must purchase their listings from whatever sources are available. Many times this means they are publishing inaccurate or outdated information. This one reason is why Frost & Sullivan does not believe that Internet directories will have an immediate impact in diverting wireline directory assistance revenues. The main users of this service will be commercial enterprises.

Revenue Forecasts

The national directory assistance (NDA) services market is experiencing very healthy growth rates. In 2000, the NDA market grew by nearly seven percent over the previous year. For the majority of the forecast period, however, the revenue growth rate is expected to decrease. By the end of the forecast period, growth is only expected to decline to 1.2 percent. In 2000, market revenues totaled $1.26 billion. Despite the declining growth rate, the market still experiences a growth in revenues. At the end of forecast period, revenues should be approximately $1.70 billion. From 2000, this is a Compound Annual Growth Rate (CAGR) of 4.37 percent.

For the purposes of this study, wireline NDA service consists of national or long distance services. Wireline refers to the copper wires used to connect subscribers to the person or enterprise that they are calling. Revenues from wireless, Internet, and print directories are not included in this deliverable. Revenues from international searches are not included in NDA forecasts.

Revenues in the wireline directory assistance market include all monies received by the service providers from the provision and usage of national directory assistance services by commercial and consumer end users. Additionally, revenues from call completion services are also included in the market forecasts. National directory assistance revenues are generated for the provision of listing and call completion services only. They do not include any long distance or toll revenues realized from carrying the conversation for the end user.

Figure 19 shows the national directory assistance market revenues for the U.S. wireline market.

FIGURE 19

National Directory Assistance Services Market: Revenue Forecasts (U.S.), 1997-2007

Year	Revenues ($ Billion)	Revenue Growth Rate (%)
1997	1.04	---
1998	1.11	6.7
1999	1.18	6.3
2000	1.26	6.8
2001	1.36	7.9
2002	1.44	5.9
2003	1.52	5.6
2004	1.58	3.9
2005	1.64	3.8
2006	1.68	2.4
2007	1.70	1.2
Compound Annual Growth Rate (2000-2007): 4.37%		

Note: All figures are rounded; the base year is 2000. Source: Frost & Sullivan

Increasing revenues can be attributed to the anticipated increase in national search requests. Search requests should increase with the advent of two developments:

- One source single number national directory assistance products
- ILECs' successful entry into the national directory assistance market

The term one source single number directory assistance (NDA) product is a description for products that meet the following four characteristics. First, they are available to any potential end user. 10-10-9000 and 10-10-ATT-00 are two examples of products that can be used by subscribers and non subscribers of a carrier. The second characteristic is that single number NDA can be used for national and local listings. Third, the product must include a call completion feature. The fourth characteristic is a seamless listing search. One single point of contact should be able to complete the search for the end user. The end user should not have to dial another number to complete the search. CLECs cannot offer seamless searches, and ILECs cannot offer their products to all potential users, even in their calling regions. As such, they are not defined as true single NDA products in this deliverable.

10-10-9000 and 10-10-ATT-00 will increase the demand for NDA service primarily because they offer call completion service within their initial offering. Most ILECS cannot offer call completion on national calls, and other IXC's charge separate fees for call completion service. With WorldCom and AT&T, end users pay $0.99 and $1.49 respectively for national searches and call completion service. Like the ILECs' offerings, end users do not need to do anything more than the name for their listing and the city and state where the listing is located. Although the two IXC's prices are comparable to what ILECs charge, the added call completion feature should lure enough end users away from ILECs to make the products very successful.

The second factor in the market's growth is the emergence of ILECs in the national directory assistance market. Most every ILEC, if not all, provide 1+411 service to their subscribers. With this service, callers no longer need to dial 1+NPA+555-1212 to search for a listing. The 1+NPA product required that end users know the area code of the listing they were searching. The freedom afforded by 1+411 service will increase the volume of, and thus the revenues for, national directory assistance service.

The factor that drives the demand for searches and increases revenues for the market, also directly influences the decreasing revenue growth rate. 1+411 services charge a maximum of $1.25 in some states. This is much lower than the $1.99 charged for using a 1+NPA product. Increased usage of the 1+411 service may not be enough to compensate for the savings realized by end users. Also, the true single number directory assistance products reduce the amount that providers of 1+NPA products can charge for call completion service. Sprint charges $1.00 for national call completion. A Sprint subscriber can use 10-10-9000 from WorldCom, obtain a national listing and have it completed for only $0.99. To combat this, IXCs will either have to offer a one source single number directory assistance product, or lower their prices for call completion service. Either way, the price for call completion service should decrease, further hindering revenue rate growth.

Decreasing revenue growth rates can also be partly attributed to the influence of wireless and Internet directories. Their prices are most often less expensive per search than wireline searches. Internet directories, while not as accurate as other directory products; are free to most users, offer unlimited searches to most users, and often provide information that the end user was requesting. Internet directories generate most of their revenue from advertisers and listed participants. Improvements must and will be made to Internet directories in order to increase their accuracy. If they remain as unreliable as they are today, they will receive less visitors and will not be able to justify their current advertising fees. Wireless directory assistance is attractive because it is mobile. Users do not need to be at home or use a public pay phone. Most importantly, the wireless databases are as accurate as wireline databases, and are less expensive.